



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,619	09/17/2003	Jin Yang	42P8534C	6808

7590 03/09/2006

Lawrence M. Mennemeier  
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP  
Seventh Floor  
12400 Wilshire Boulevard  
Los Angeles, CA 90025-1030

EXAMINER

PARIHAR, SUCHIN

ART UNIT PAPER NUMBER

2825

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/666,619	<b>Applicant(s)</b> YANG, JIN	
	<b>Examiner</b> Suchin Parihar	<b>Art Unit</b> 2825	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/17/03; 7/16/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is in response to application 10/666,619 filed on 09/17/2003. Claims 1-19 are pending in this application.

#### ***Information Disclosure Statement***

1. With respect to IDS submitted on 7/16/2004, Citation 1 is not considered because the Patent Number 5,870,509 does not match the listed Patentee Kita et al. The intended patent is not identifiable because of the mismatch.

#### ***Specification***

2. The disclosure is objected to because of the following informalities: Reference to Parent Application 09/677,262 needs to be updated on page 1 of the specification. Application 09/677,262 is now U.S. Patent 6,643,827. Appropriate correction is required.

#### ***Claim Objections***

3. Claims 1, 11 and 16 are objected to because of the following informalities: With respect to claims 1, 11 and 16, the preamble(s) should state the intended use or purpose of the invention with respect to each claim. C.R. Bard v. M3 Systems, Inc. 157 F.3d 1340, 48, 48 USPQ2d 1225,1230-31 (Fed. Cir. 1998). Appropriate correction is required.

4. Claim 19 is objected to because of the following informalities: Line 1 of claim 19, which recites "The computer software product recited in Claim 18", should be amended such that it recites, --The verification system recited in Claim 18--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. **Claims 6-10, 12-15 and 17-19 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. With respect to claim 6, the phrase "implication structure" is not supported by the specification. Claims 7, 8, 9 and 10 depend from claim 6, and therefore inherit the 112 1<sup>st</sup> paragraph rejection of claim 6. With respect to claim 12, the specification fails to support "structure of the first property", found on the last line of claim 12. Claims 13-15 depend from claim 12, and therefore inherit the 112, 1<sup>st</sup> paragraph rejection of claim 12. With respect to claim 17, the specification fails to support "logical structure of the first property", found on the last line of claim 17. Claims 18 and 19 depend from claim 17, and therefore inherit the 112, first paragraph rejection of claim 17.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 6, 7, 8, 9 and 10 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject

Art Unit: 2825

matter which applicant regards as the invention. With respect to claim 6, the phrase "implication structure" is not supported by the specification. Claims 7, 8, 9 and 10 depend from claim 6.

9. **Claims 12-15 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With respect to claim 12, the specification fails to support "structure of the first property", found on the last line of claim 12. Claims 13-15 depend from claim 12.

10. **Claims 17-19 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With respect to claim 17, the specification fails to support "logical structure of the first property", found on the last line of claim 17. Claims 18 and 19 depend from claim 17.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. **Claims 1-5, 11 and 16 are rejected under 35 U.S.C. 102(b)** as being unpatentable over the Chiodo et al. (Chiodo) paper "Automatic Compositional Minimization in CTL Model Checking" (Nov, 1992).

Art Unit: 2825

12. With respect to claim 1, Chiodo teaches: generate, from a first property, a first assumption including a first state predicate (pg 172, 1 Introduction, 1<sup>st</sup> paragraph, i.e. to deduce properties by reasoning of the individual components and their interactions [assumption]); generate, for a model, a first transition relation that includes the first state predicate (pg 173, 2.1 FSM Model, i.e. transition from present state to next state enabled by input i); and reduce the first transition relation according to the first assumption (pg 175, 3.2 Model Checking on a System of FSMs, i.e. reduced transition relation).

13. With respect to claim 2, Chiodo teaches all the elements of claim 1, from which the claim depends. Chiodo teaches: wherein reducing the first transition relation reduces the size of the model (pg 172, Introduction 1, i.e. one tries to reduce the components in such a way that their composition yields a smaller model).

14. With respect to claim 3, Chiodo teaches all the elements of claim 1, from which the claim depends. Chiodo teaches: wherein reducing the first transition relation reduces the computational complexity of evaluating the first property (pg 173, Introduction, paragraphs 6 & 7, i.e. discussion of only preserving the behavior to verify the property, and reducing the size of the representation by removing irrelevant behavior).

15. With respect to claim 4, Chiodo teaches all the elements of claim 1, from which the claim depends. Chiodo teaches: wherein reducing the first transition relation reduces the number of variables in the model (pg 172, Introduction, paragraph 4, i.e. to produce component machines that have fewer states than the original ones).

Art Unit: 2825

16. With respect to claim 5, Chiodo teaches all the elements of claim 1, from which the claim depends. Chiodo teaches: wherein reducing the first transition relation reduces the number of variables in the first transition relation (pg 172, Introduction, paragraph 4, i.e. to produce component machines that have fewer states than the original ones).

17. With respect to claim 11, Chiodo teaches: means for producing, from a first property, a first assumption including a first state predicate (pg 172, Introduction 1, 1<sup>st</sup> paragraph, i.e. to deduce properties by reasoning of the individual components and their interactions [assumption]); and means for producing a reduced next state function from a first next state function involving the first state predicate by applying the first assumption (pg 173, FSM Model 2.1, i.e. input to each component consists of present states [state predicate] and external inputs [assumption], and in this way, interacting FSM models [functions] produce a reduced transition relation).

18. With respect to claim 16, Chiodo teaches: a recordable medium to store executable instructions; a processing device to execute executable instructions (i.e. the term 'automatic' [see title] implies the use of a computer to produce the result(s) of the invention); and a plurality of executable instructions to cause the processing device to: produce, from a first property, a first assumption including a first state predicate (pg 172, Introduction 1, 1<sup>st</sup> paragraph, i.e. to deduce properties by reasoning of the individual components and their interactions [assumption]); produce, for a model, a first transition relation that includes the first state predicate (pg 173, 2.1 FSM Model, i.e. transition from present state to next state enabled by input i); and reduce the first transition

relation according to the first assumption (pg 175, 3.2 Model Checking on a System of FSMs, i.e. reduced transition relation).

### ***Double Patenting***

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. Claims 1-19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-34 of U.S. Patent No. 6,643,827.

Although the conflicting claims are not identical, they are not patentably distinct from each other because: the subject matter recited in claims 1-19 of the instant application closely matches the claimed subject matter of Patent 6,643,827.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suchin Parihar whose telephone number is 571-272-6210. The examiner can normally be reached on Mon-Fri, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

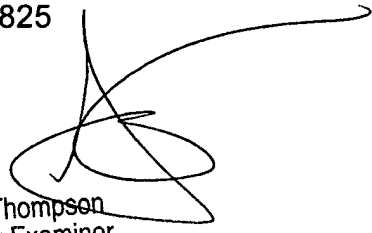
Art Unit: 2825

*Suchin Parihar*

Suchin Parihar

Examiner

AU 2825

  
A. M. Thompson  
Primary Examiner  
Technology Center 2800